
The Economic Logic of Persistent Informality: Artisanal and Small-Scale Mining in the Southern Philippines

Boris Verbrugge

ABSTRACT

This article critically evaluates existing causal explanations for the persistence of informality in artisanal and small-scale mining (ASM). These explanations share a legalistic focus on entry barriers and political impediments that prevent or discourage the formalization of poverty-driven ASM operators: however, they fail to fully explain cases such as that of the Philippines, where ASM is characterized by differentiation between a poverty-driven workforce and a dominant stratum of ASM entrepreneurs. Even where limited formalization frameworks provide ASM with a degree of legal recognition, this recognition is usually restricted to these more powerful ASM interests, while excluding the workforce at large. This article therefore proposes an integrative approach to analysing informality in ASM, which complements the existing legalistic focus on entry barriers with a structuralist concern over the exploitation of informal labour. Seen from this perspective, the massive expansion of ASM in the Philippines can be seen as the product of a transition away from capital-intensive large-scale mining to a flexible regime of accumulation built around the exploitation of informal ASM labour. This observation highlights the need to pay more critical attention to the economic logic and the vested interests underlying the (selective) persistence of informality in the workforce.

INTRODUCTION

In recent decades artisanal and small-scale mining (ASM) has witnessed a spectacular growth worldwide, with current estimates putting the number of those involved in what is normally defined as ‘labour-intensive, low-tech mineral exploration and processing’ (Hilson, 2011: 1032) at 20–30 million worldwide (Buxton, 2013). Notwithstanding efforts on the part of host governments to regulate the sector, informality remains one of its defining features (Siegel and Veiga, 2009). Most existing analyses of this persistent informality focus on the fiscal, administrative and political barriers that

I would like to acknowledge field assistance from my Filipino friends Totong and Bon, as well as helpful comments from the anonymous reviewers of this piece.

Development and Change 46(5): 1023–1046. DOI: 10.1111/dech.12189

© 2015 International Institute of Social Studies.

prevent 'poverty-driven' (Hilson, 2010) ASM operators from obtaining access to mineral-bearing land through existing formalization schemes (Hilson, 2013; Van Bockstael, 2014). However, these explanations fail to fully understand the situation in countries such as Tanzania (Fisher, 2007) and the Philippines (Verbrugge, 2014), where ASM has reached a more advanced stage, and is characterized by differentiation between a dominant stratum of ASM entrepreneurs, and a massive workforce. While existing causal explanations for the persistence of informality can explain the failure of these entrepreneurs to secure formal access to mineral-bearing land through official permits, they cannot account for the persistence of informality in employment arrangements and in the workforce at large, even in cases where a permit has been issued.

In an effort to remedy this important shortcoming, and to develop a more comprehensive understanding of the diverse causes and consequences of informality for the different (categories of) actors involved in the sector, this article proposes an integrative approach for analysing informality (Chen, 2008) in ASM. This integrative approach bridges the divide between the existing ASM literature and structuralist informalization approaches, which treat the massive expansion of informal sector activity as an intricate product of economic crisis and restructuring. More precisely, dwindling opportunities for accumulation in the formal economy have induced a massive shift towards strategies of accumulation that rely on the exploitation of cheap informal labour (Portes et al., 1989; Tabak and Crichlow, 2000).

The added value of this integrative approach is then illustrated by applying it to the predominantly informal ASM sector in Compostela Valley, in the southern Philippines. Here, even in cases where ASM operates inside a designated permit area, the workforce remains without formal legal recognition. An historical analysis of shifting strategies of accumulation in the mining sector reveals that, following a profound crisis in capital-intensive large-scale mining, a transition occurred to more flexible ASM, in which accumulation revolves around the exploitation of a massive informal labour force. In short, while informality is partly a product of entry barriers and political impediments that exclude ASM from the formal economy, the persistence of informality in labour arrangements is also a matter of exploitation, and serves the interests of a dominant stratum of ASM entrepreneurs.

Carrying out research on ASM is a challenging affair due to a range of sector-specific characteristics, including variable income and production levels and a high degree of mobility (Heemskerk, 2005). In this case, the political context also presented particular challenges. Apart from the fact that their 'illegality' makes ASM operators wary of outside inquiry, Compostela Valley province is also home to different armed actors that are to varying degrees involved in ASM. Further compounding these challenges is the almost complete absence of data on Philippine mining in the 1980s and 1990s. To overcome these methodological challenges, I relied on a range of qualitative research methods that allowed me to work my way around thorny

political issues, and to establish relationships of trust with respondents. This article draws on approximately seven months of field research and more than 200 open-ended interviews with a broad range of respondents, with a prime focus on upland settlers, ASM labourers and financiers. Life-course methodologies that 'give value to the subjective life account as revealing of wider institutional changes' (Locke and Lloyd-Sherlock, 2011: 1132) were particularly helpful. Analysing and combining concise life narratives with scant existing evidence on trends in the Philippine mining sector allowed me to reconstruct historical-institutional trajectories and shifts in the underlying structure of accumulation.

COMPETING THEORETICAL APPROACHES TO INFORMAL SECTOR ACTIVITY¹

Entry, Exit and Exclusion as Dominant Causal Explanations

Insofar as the informal sector received academic attention before the 1970s, it was typically approached from a modernist viewpoint, as a remnant of traditional societies bound to disappear with economic progress (Tabak and Crichlow, 2000). The continued expansion of the informal sector in subsequent decades, both in developing and in developed countries, attracted growing scholarly attention. Initial explanations for this continued expansion of informal sector activity were steeped in a pervasive dualism, which assumes a strict dichotomy between the formal and the informal realms of the economy. One influential approach, closely associated with the International Labour Organization (ILO), saw the informal sector as a marginal economy populated by petty entrepreneurs (ILO, 1972). These dualist approaches see informal sector growth as 'counter-cyclical': expanding in times of crisis, and contracting in times of growth.

With the ascendance of neoliberal development paradigms a more optimistic, legalist approach to informality emerged. Closely associated with the work of Peruvian economist Hernando de Soto (2000), this approach views the informal sector as a reservoir of 'plucky micro-entrepreneurs' (Chen, 2008: 22) who lack formal property rights because of various fiscal-regulatory barriers that prevent their entry into a formal sector dominated by a 'mercantilist' elite which deliberately excludes them (de Soto, 1989). These observations provided legitimation for minimalistic formalization programmes which focus on the registration of (previously unregistered) property rights. In recent years a related voluntarist approach has gained popularity. While also paying attention to fiscal and regulatory barriers in

1. This section draws on Chen (2008), who provides an excellent overview of different theoretical approaches to the informal sector.

the formal economy, the focus lies on how these provide rational economic actors with incentives to exit the formal economy (Maloney, 2004).

While these leading approaches to informal sector activity continue to resonate widely, they were also criticized on a number of counts. By depicting the informal sector as a homogeneous group of self-employed individuals, they fail to recognize the heterogeneous and segmented character of informal sector activity (Biles, 2009). Furthermore, the dualist assumptions underpinning these approaches preclude a fuller understanding of how the informal sector is entangled with the formal sector, and how the expansion of informal sector activity is embedded in the 'longue durée' of capitalism (Tabak and Crichlow, 2000).

Structuralist Informalization Perspectives and the Exploitation of Informal Labour

Engaging with these criticisms are neo-Marxist, structuralist approaches to informal sector activity, closely associated with the work of Alejandro Portes (Portes and Schauffler, 1993; Portes et al., 1989). Structuralist approaches do not study the informal sector as a distinct set of economic activities, but instead draw attention to informalization as a long-term systemic process embedded in the ebbs and flows of global capitalism (Tabak and Crichlow, 2000). The expansion of informal sector activity in recent decades is not simply seen as a bottom-up reaction to economic crisis or over-regulation, but as a capitalist response to a crisis of accumulation in the formal economy: to counter declining profit rates and avoid 'the costs of social security obligations and other substantial overhead costs of formal sector operation' (Meagher, 1995: 260), employers have increasingly resorted to the exploitation of a cheap informal labour reserve.

Analytically, structuralist approaches focus on three distinct features of informal sector activity (slightly adapted from Meagher, 1995). First, they aim to understand the heterogeneous and segmented character of informal sector activity. Portes and Schauffler (1993) distinguish between subsistence, autonomous and subordinate informal sector activity. While the first two categories form the domains of dualist and legalist approaches, respectively, the third category involves those activities linked with production and consumption in the formal economy, and forms the focal point of structuralist approaches. Similarly, Harriss-White (2010: 171) distinguishes between small-scale informal activity (i.e. those activities with minimal entry barriers and 'below size thresholds for taxation and labor regulation') and interstitial informal activity, which takes place 'in and around registered or formal businesses or state bureaucracies'. In reality, of course, informal sector work is characterized by complex employment arrangements that cut across these categories (Biles, 2009). Nonetheless, for analytical purposes it is still helpful to distinguish between informal self-employment (including

both informal own-account workers and informal employees) and informal wage employment (Chen, 2008).

Second, attention is drawn to the intricate connections between the formal and the informal economy. The defining logic of these connections is the exploitation of informal labour by formal sector interests. This exploitation can occur directly, with companies hiring workers ‘off the books’, or indirectly, through outsourcing and subcontracting as ‘the primary means of linking the formal and the informal economy’ (Biles, 2009: 224). Attention has also been drawn to the role of middlemen who recruit and discipline informal labour, and act as ‘the link between providers of capital in the form of raw materials or semi-products’ and ‘workers whose labour adds value to them’ (Breman, 1999: 455).

A third focal point is the enabling role of state institutions and social networks in processes of informalization.² Although many states simply lack the capacity to regulate the informal economy, ‘the expansion of informality since the 1970s ... demands the complicity of the state’ (Meagher, 1995: 265). For one, ‘ambiguous and inconsistent policy, and policy that is difficult to enforce, represent an implicit encouragement of informalization’ (ibid.: 277; see also Fernandez-Kelly and Garcia, 1989). The enabling role of the state in the informalization of the economy was — somewhat paradoxically — further galvanized by structural adjustment, which supported a ‘deinstitutionalization and decentralization of the economy’ (Meagher, 1995: 278). Finally, state actors may be politically inclined to condone or even support informal sector activity, because it provides the population with valuable opportunities for survival and accumulation, thereby contributing to sociopolitical stability (Rubbers, 2007). Where social networks are concerned, for our purposes it is particularly important to understand their role as organizational structures that connect ‘the employer to a supply of “trustworthy” labour’ (Weiss, 1987: 229).

Towards an Integrative Approach

While these different approaches to informal sector activity clearly have explanatory power in the face of persistent informality, each of them offers only a partial causal explanation in the context of a particular segment of the informal economy (Chen, 2008). Whereas legalist and voluntarist approaches are clearly more relevant in the case of the informal self-employed, persistent informality in the workforce usually stems from a combination of exclusion (from existing regulatory frameworks) and exploitation, and is better understood through a structuralist lens.

2. While Meagher (1995) discusses the role of the state and social networks separately, for analytical purposes I have opted to discuss them together.

What is needed, then, is an integrative approach for analysing informality, which couples a nuanced understanding of the structural characteristics of the informal economy with an analysis of different forms of informality, combining causal explanations that focus on entry, exit and exclusion as well as exploitation (Chen, 2008). In a similar vein, Biles proposes studying the informal sector through the holistic concept of regulation, which pays attention not just to 'the legal status of the activity' but also to 'the relationship between employer and employee (access to social protections and benefits such as health care and pensions), and conditions within the workplace (e.g. working conditions, hours, and wages)' (Biles, 2009: 216).

THEORETICAL REFLECTIONS ON THE PERSISTENCE OF INFORMALITY IN ASM

Informality: A Question of Entry, Exit and Exclusion?

Critical ASM observers have long been preoccupied with disproving images of a sector composed of opportunist fortune-seekers. An academic consensus has emerged that attributes ASM expansion to a pervasive subsistence crisis, caused by interrelated processes of structural adjustment, de-agrarianization (e.g. Banchirigah, 2007; Hilson, 2010; Hilson and Garforth, 2012), and in some cases even armed conflict (Hilson and Van Bockstael, 2011). This poverty-driven view of ASM as a survival activity whose 'low barriers to entry mean that smallholders only require a pick and shovel to start working' (Kamlongera, 2011: 1131) is surprisingly akin to earlier dualist understandings of the informal sector which treat it as a marginal subsistence economy.

The idea that these poverty-driven ASM operators require enforceable property rights is now well established in policy circles, and many countries have set up permit and licensing schemes (Siegel and Veiga, 2009). However, these efforts to formalize ASM have largely failed. Causal explanations for the persistence of informality are in line with dominant legalist — and to a lesser extent voluntarist — approaches to informal sector activity, and focus on identifying the fiscal-administrative barriers and political impediments that prevent and/or discourage formalization (Hilson, 2013; Maconachie and Hilson, 2011; Tschakert and Singha, 2007; Van Bockstael, 2014). The prevailing sentiment in many countries is nicely captured by Banchirigah's observations about Ghana: 'Although the government has long legalised ASM, requiring prospective applicants to follow a series of streamlined regulations to obtain a concession, ineffective policies and bureaucratic inefficiency have impeded formalisation, making illegal activity more appealing' (Banchirigah, 2008: 29).

With regard to political obstacles, important questions have been raised over elite capture of the formalization process. In Tanzania, for example,

formal licences accrue primarily to those actors with the necessary procedural knowledge and political connections. Another major reason for the persistence of informality in many countries is government support for large-scale mining (Banchirigah, 2007; Hilson and Potter, 2005). In several of these countries, ASM formalization was a 'legislative afterthought', introduced after mining companies had monopolized access to mineral-bearing land (Banchirigah and Hilson, 2009). Hilson even sees informality as 'an intentional construct on the part of policymakers and donors' (Hilson, 2013: 56), who prioritize large-scale mining over ASM, while 'making it extremely difficult for individuals to secure the necessary paperwork and licenses to participate in the latter' (ibid.: 54).

Others have noted that some ASM operators may not necessarily be interested in acquiring a formal licence (Geenen, 2012), and may well be satisfied with access that is negotiated informally (Van Bockstael, 2014). Meanwhile Cartier and Bürge (2011: 1089) suggest that 'Operating without a license offers many gold miners greater mobility and flexibility in their search for commercially viable gold deposits and also suits more rudimentary, temporary and seasonal mining activities'.

The Role of Differentiation and Exploitation

Causal explanations for the persistence of informality in ASM that focus on entry, exit and exclusion resonate widely, giving rise to policy recommendations that focus on 'democratizing' registration procedures and segregating mineral-bearing land for ASM (Hilson, 2013). However, based on the critical overview of theoretical approaches to informal sector activity provided above, several shortcomings can be identified. These shortcomings essentially stem from rather simplistic images of a dual mining economy that is assumed to be bifurcated between formal, capital-intensive large-scale mining and informal, poverty-driven and rudimentary ASM (for a recent example see Canavesio, 2014). While these images may well capture the situation in some countries, overly simplistic dualistic assumptions bar us from fully appreciating the complexity of ASM and the reasons fuelling its persistent informality.

Images of an exclusively informal ASM segment do not always correspond to realities on the ground. Instead, in countries with a long-standing tradition of ASM regulation, such as Ghana and Tanzania, the sector has 'evolved into a highly intertwined group of semi-formal sectors operating with varying degrees of legal registrations' (Teschner, 2012: 308). Furthermore, as Chachage (1995) has demonstrated for Tanzania, there has been a long history of interaction between large-scale mining and ASM, with the latter usually in a subordinate position. Arguably more problematic is that explanations which treat ASM as a poverty-driven subsistence sector often fail to account for its heterogeneous and segmented character. In recent

years, our understanding of the different working practices, employment arrangements and organizational practices in ASM has improved immensely (e.g. Cartier and Bürge, 2011; Jönsson and Fold, 2009). Furthermore, research in countries as diverse as Tanzania (Fisher, 2007), Guyana (Clifford, 2011) and the Philippines (Verbrugge, 2014) has revealed a central role for external financiers. The injection of outside capital has led to a growing differentiation among ASM operations in terms of their level of capitalization and professionalization, but also between a nascent group of ASM entrepreneurs and a poverty-driven workforce. In general, attempts to explain persistent informality in ASM remain disconnected from these more nuanced understandings of the structural characteristics of the sector. A notable exception is Fisher, who couples a discussion of formalization efforts in Tanzania with an empirical analysis of working and sharing arrangements in ASM. In doing so, she argues that while formalization efforts benefit ‘certain wealthier categories of people, who fit into the model of an “entrepreneurial small-scale miner”’ (Fisher, 2007: 735), they simultaneously neglect existing employment arrangements, thereby reinforcing rather than mitigating existing practices of exclusion and exploitation.

Using an Integrative Approach for Analysing Informality in ASM

In short, existing analyses of persistent informality in ASM are strongly influenced by dualist, legalist and (to a lesser extent) voluntarist approaches to informal sector activity. What is largely lacking in the ASM literature is an engagement with structuralist concerns over the exploitation of informal labour, and its role in broader structures of accumulation. There is an urgent need for an integrative approach for analysing informality in ASM, which complements more ‘mainstream’ concerns over entry, exit and exclusion, with a critical structuralist concern over exploitation. Such a structuralist lens obliges us to look at (1) historical processes of differentiation in the ASM sector; (2) possible (historical) linkages between ASM and large-scale mining; and (3) the role of state actors and social networks in the recruitment and possibly the exploitation of informal labour. In the remainder of this article, the added value of such an integrative approach will be illustrated on the basis of empirical evidence from Compostela Valley province, the self-proclaimed ‘gold mining capital of the Philippines’.

THE PERSISTENCE OF INFORMALITY IN ASM: THE CASE OF COMPOSTELA VALLEY

Since the 1980s ASM has undergone a dramatic expansion in the Philippines, particularly but not exclusively in the form of small-scale gold mining (Verbrugge, 2014). Recent estimates put the number involved in the sector

between 125,000 and 500,000 nationwide.³ Despite this expansion, ASM continues to escape broad public and academic attention. When it is discussed, simplistic dualist images prevail whereby ‘small-scale mining practiced largely by marginalized local communities who employ labor-intensive traditional technology’ is seen to exist alongside ‘large-scale mining which is undertaken by large local and foreign corporations that employ sophisticated technology’ (Gomez, 2010: 8). Only recently has an attempt been made to qualify this simplistic image of ASM as a poverty-driven sector, with Verbrugge (2014) arguing that outside financiers motivated by a desire to accumulate have pushed ASM well beyond subsistence level.

Successive governments have undertaken efforts to extend the state’s regulatory control over ASM.⁴ In 1984 President Marcos created a highly permissive permit system for ASM through Presidential Decree (PD) No. 1899. In 1991, Republic Act (RA) No. 7076 (the ‘People’s Small-Scale Mining Act’) put in place more stringent requirements for ASM, creating provincial/city mining regulatory boards authorized to segregate ‘people’s small-scale mining areas’ (*Minahang Bayan*) wherein two-year renewable contracts may be awarded to ASM cooperatives registered with the securities and exchange commission and the cooperative development authority. Both PD 1899 and RA 7076 define small-scale mining as ‘artisanal with heavy reliance on manual labor and without the use of explosives and/or blasting accessories ... [and] prohibited from using sophisticated and/or heavy equipment, i.e. excavators, loaders, backhoes, dozers, drilling machines and/or related or similar equipment for the extraction and/or breakage of materials’.⁵ Several other administrative and executive orders further specified and tightened existing regulations, particularly in the domains of land use, safety and the environment.

Despite these different regulatory initiatives, an estimated 80 per cent of ASM continues to operate without the necessary permits (Galvez, 2012). Furthermore, while the central bank retains a formal monopoly on gold buying, after reaching an all-time high of 42.9 billion Philippine Pesos (around US\$ 1 billion) in 2010, official gold sales plummeted, and there has been a massive increase in gold smuggling (Francisco, 2012). This section aims to provide an explanation for persistent informality in the sector, based on the integrative approach proposed in the previous section. For the sake of analytical clarity, this explanation will be structured along the lines of the

3. While the exact number of ASM participants in the country is subject to a high degree of speculation, this figure was mentioned in the inaugural speech of Ateneo de Davao president Joel Tabora (who consulted various experts participating in the conference) at a 2012 conference on ASM hosted by Ateneo de Davao University.

4. For relevant laws and regulations, see the website of the Mines and Geosciences Bureau: www.mgb.gov.ph

5. ‘Clarificatory guidelines in the implementation of the small-scale mining laws’, DENR Memorandum Circular No. 2007-07: <http://mgb.gov.ph/Files/Policies/dmc-2007-07.pdf>. (accessed 8 April 2014).

four major causal explanations for informality as identified by Chen (2008), namely entry, exit, exclusion and, last but not least, exploitation.

Looking for Viable Explanations for Persistent Informality

At least in part, informality is a matter of a lack of state capacity, with numerous state officials complaining that limited human and financial resources prevent them from monitoring ASM, which often takes place in remote areas. The situation in Compostela Valley is exacerbated by the transient nature of ASM — which is often described as a ‘hit-and-run’ activity — and the presence of different armed groups, some of which (particularly the communist New People’s Army) are hostile towards (national) government actors.

While the lack of state capacity offers opportunities to evade government supervision, ASM operators also have clear incentives to do so. Government officials have repeatedly suggested that ‘exit’ is indeed a viable causal explanation for the lack of official permits: ‘We are waiting for them, they should join forces, form a cooperative, and apply for a permit. Then they should come to our office and comply with the registration procedures. But they do not respond, it seems that they are not interested in being regulated’.⁶ ASM operators would indeed have a problem if they had to comply with the strict mine safety rules and regulations provided by Administrative Order 97-30, or the ban on mercury use — still a widely used method for gold extraction — introduced by Executive Order 79. Furthermore, the dramatic rise in illegal gold trading since 2011 is clearly the result of the imposition of a 2 per cent excise tax and a 5 per cent withholding tax on gold sales (Francisco, 2012).

While ASM operators thus have clear incentives to evade government regulation, most still expressed the sincere hope of obtaining a permit. However, a range of fiscal and administrative barriers prevent most of them from actually doing so. Applicants need to comply with a seemingly endless list of requirements in order to qualify for a permit or contract, including notarized application forms, survey plans prepared by a land surveyor, a surety bond, a technical evaluation report from the Mines and Geosciences Board (MGB), Environmental Compliance Certificates from the Department of Environment and Natural Resources, business permits and zoning certifications issued by local governments, a mining plan prepared by an engineer, and proof of financial and technical capability issued by a financial institution.⁷ These different administrative requirements carry significant costs in the form of filing, processing, clearance and registration fees. These costs are further inflated by pervasive rent-seeking, with respondents

6. Interview with provincial government official, Nabunturan, October 2012.

7. This list was provided by the Provincial Agriculturalist Office.

admitting to having paid ‘standard operating procedures’ or ‘under the table’ payments to smooth the permit (renewal) process. Respondents from different provinces mentioned permit costs ranging from P 100,000 to 300,000 (US\$ 2,500–7,500) — an amount that most ASM operators could never afford.

In addition to these entry barriers, various political impediments conspire to exclude ASM operators from the formal economy. In addition to pervasive rent-seeking on the part of state officials, the allocation of permits is also plagued by nepotism and patronage. It is crucial for ASM operators to have connections at the level of the provincial governor, who retains a high degree of control over the allocation of permits through the Provincial Mining Regulatory Board. Ultimately, this gives rise to the paradoxical situation whereby those who are able to comply with the permit process no longer qualify as small-scale miners according to existing legal definitions.

Another key requirement for ASM operators to qualify for a permit is the consent of existing surface and/or mineral rights holders. In some cases land and associated royalty rights are claimed by a tribal community under the Indigenous People’s Rights Act of 1997. Furthermore, and in line with the situation in countries such as Ghana (Hilson, 2013), the national government seems to be prioritizing large-scale mining over ASM, awarding increasingly large tracts of mineral-bearing land to large mining companies, who are reluctant to (legally) condone the presence of ASM inside their concession. At the same time, increasingly large tracts of land have been declared protected areas by the national government, which makes them off bounds for mining.

Most analyses end here, providing causal explanations that focus on entry, exit and/or exclusion. However, such explanations cannot fully account for the situation in places like Compostela Valley where, despite a clear stipulation in RA 7076 that ‘All persons undertaking small-scale mining activities shall register as miners . . . and may organize themselves into cooperatives in order to qualify for the awarding of a people’s small-scale mining contract’, the workforce remains excluded from existing formalization efforts. Even where a cooperative has been issued with a contract, its membership is often restricted to financiers and royalty-receiving landowners.

In an attempt to remedy this shortcoming, we now turn to a historical, structuralist analysis of ASM in Compostela Valley, paying particular analytical attention to processes of differentiation, to historical linkages between ASM and large-scale mining, and to the role of state actors and social networks in the informal mining sector. The central argument is that the massive expansion of (predominantly) informal ASM in Compostela Valley can be seen as a process of informalization in the mining sector, epitomized by a transition from capital-intensive large-scale mining to a more flexible regime of accumulation built around ASM and the exploitation of its informal workforce.

Boom–Bust Cycles in Philippine Mining

While the Philippines has a long history of artisanal gold mining (Caballero, 1992), during American colonial rule in the first half of the twentieth century the country saw the emergence of a modern mining sector (Habana, 2008). In 1936, Commonwealth Act 137 put in place a mineral tenure system that enabled the government, as the exclusive owner of mineral resources, to grant private large-scale mining concessions (Lopez, 1992). While the nascent corporate mining sector displaced and/or absorbed many of the artisanal miners as unskilled wage labour, it did not destroy ASM altogether. Instead, cursory evidence suggests that the expansion of large-scale mining gave further impetus to ASM, as the ‘exposure of deeper lode veins made by the big mines made readily available more mining holes and enriched the panning streams to these small mines’ (Habana, 2008: 37). Power relations soon tilted in favour of the mining companies, who became ‘the main gold buyers, principal employers, and sources of credit and patronage’ (ibid.: 33). However, the corporate mining boom came to a grinding halt with the outbreak of the Second World War.

In the decades after the war, metal mining expanded dramatically, and the 1950s and 1960s saw the emergence of ‘mining giants’ like Philex and Atlas, which started mining projects throughout the country (Ofreneo, 2009). Under the impetus of rising gold prices, the 1970s became ‘undoubtedly the busiest for the mining industry as a whole. Old, dormant gold mines were reopened, new gold mines developed, existing copper mines expanded, and new copper projects undertaken’ (Lopez, 1992: 264). While respondents indicated that these mining companies also employed cheap, unskilled local labour, particularly for infrastructure development, they ultimately relied on capital-intensive mining methods and skilled mining labour, which was reportedly among the best paid in the country.

By the 1980s a combination of factors triggered a major crisis in the mining sector. The global oil crisis of the 1970s–80s and the associated drop in mineral prices rendered capital-intensive large-scale mining increasingly unprofitable (Lopez, 1992; Ofreneo, 2009; Santos, 2001). A severe debt crisis led to rising pressures on the Marcos regime, with civil unrest and armed insurgency on the rise, particularly on the southern island of Mindanao (Abinales, 2000). Creditors lost faith in the Philippines, leading to unprecedented levels of capital flight (Hutchcroft, 1991). Faced with these uncertain prospects, President Marcos and his entourage were increasingly preoccupied with enriching themselves through ‘Crony business failures associated with an unstable environment which discouraged long-term local investment in favor of short-term gains’ (Pinches, 1996: 112).

In 1974 President Marcos promulgated Presidential Decree 462, which sought to get rid of neocolonial ties with the USA by putting a 40 per cent constitutional bar on foreign ownership. However, it also led to a sudden retreat of foreign financial and human capital from the mining sector (Lopez,

1992). The subsequent 'Filipinization' of the mining sector coincided with a proliferation of 'one-of-a-kind arrangements and special deals' (Clad, 1988: 76), whereby the Marcos government granted loan guarantees to selected local mining projects, many of which later defaulted on their debt obligations (Santos, 2001). In 1981 the government suddenly raised mining taxes, revealing yet again the regulatory volatility in the mining sector (Lopez, 1992; Santos, 2001). In this context, an increasing number of mining companies fell prey to corruption, mismanagement and rising production costs.

The post-war mining sector of Compostela Valley⁸ provides a good illustration of these trends. From the 1950s onwards, Compostela Valley witnessed the entry of several big copper mining projects. After reaching their apex in the late 1970s and early 1980s, however, these projects were negatively affected by the interplay between fledgling mineral markets and corporate mismanagement. The workforce bore the brunt of the crisis: 'The crippling price crisis in the metals market and the recession-depression in the Philippines in the first half of the 1980s forced many mining companies to institute all kinds of cost-saving measures, including ways to reduce labour costs' (Lopez, 1992: 376). Increased social unrest further speeded the process of decay. APEX mining, still the biggest mining project of Compostela Valley, is a good example. Starting out as a copper mining project in the early 1970s, APEX pursued an aggressive expansion of its gold mining operations in response to rising gold prices in the 1980s. However, the company's operations quickly went into decline, and by the mid-1980s the APEX concession was effectively controlled by a small group of company guards and engineers who were increasingly reneging on their responsibilities *vis-à-vis* the workforce, which 'received no more salaries, had no cooperative, no canteen and no more supplies'.⁹ This cleared the way for militant labour activism, spearheaded by the Southern Philippines Federation of Labour (SPFL), which eventually culminated in a general strike in the late 1980s. While the engineers managed to temporarily stave off the labour shortage by hiring short-term contractual labour, by 1991 APEX, like nearby North Davao mining and SABENA mines, was forced to close its operations.

From Corporate Mining, through Subordinate ASM, to Autonomous ASM

Worsening conditions in large-scale mining led to an exodus of (semi-) skilled workers, many of whom became involved in rudimentary tunnelling activities that targeted surface gold veins. Up to this point the narrative still conforms to existing accounts of ASM expansion in countries such as Ghana (Hilson, 2010) and the DRC (Geenen, 2011), where former

8. Prior to 1998, when Compostela Valley became a separate province, it was part of Davao del Norte.

9. Interview with former APEX employees, Maawab, January 2014.

large-scale mining labour played an important role in ‘kick-starting’ ASM. In the Philippines, however, the transition to ASM was not confined to the ‘rank and file’. Instead, upon realizing their dwindling prospects in large-scale mining, a number of those involved in the higher echelons of the mining companies also shifted their attention to ASM, and came to play a vital role in the sector’s subsequent maturation.

By the early 1980s, the APEX management — or what remained of it — had responded to the expansion of ASM by initiating an ‘outside project’, which consisted of buying ores and ball mill tailings from ASM, and processing them inside the APEX compound.¹⁰ In return, ASM operators received a per ton lump sum, based on assay (mineral content) readings provided by the APEX management. While the compensation was not necessarily deemed fair by the miners in question, respondents nonetheless suggested that this additional source of income ‘inspired us to dig more ore’.¹¹ Thus, instead of being merely a subsistence response to economic crisis on the part of a destitute workforce, the shift to ASM was actively supported by corporate mining interests.

From the mid-1980s onwards, ASM would gradually ‘emancipate’ itself from corporate mining, as epitomized by the end of APEX’s outside project in the late 1980s. Some of the engineers and chemists previously employed in APEX and nearby North Davao mining had decided to pool their skills and resources to set up their own corporation, Value Minerals (VMI). While VMI also financed its own tunnels, its main activity consisted of buying and processing ores and ball mill tailings from other ASM operators. For this purpose VMI established the first carbon-in-pulp (CIP) processing¹² plant in Compostela Valley (and most likely in the Philippines as a whole) that was not owned by large-scale mining¹³. This led to a gradual democratization and diffusion of CIP processing throughout Compostela Valley, which dramatically increased the profitability and feasibility of ASM.

By the early 1990s the transition to ASM had even taken place inside the large-scale mining concessions. Following APEX’s closure in 1991, many of its former workers left for one of the numerous gold rush areas in the region, but others became engaged in ASM inside the company premises. Rather than a spontaneous effort on the part of a destitute workforce, this shift was orchestrated by the remaining APEX engineers. Under the new set-up, they provided the workforce with materials (‘sacks, picks, hammers, timber and nails’¹⁴) to maintain the tunnels, while retaining as much as 60 per cent of the ores. The remaining 40 per cent accrued to the workforce,

10. This was confirmed by several respondents, but see also Lopez (1992).

11. Interview with small-scale miner, Maco, February 2014.

12. CIP processing is a gold recovery technique whereby high-grade gold ores are dissolved in a limestone-cyanide slurry. Carbon is then introduced to ‘capture’ the gold particles, and this ‘impregnated’ carbon is then ‘cooked’ to recover the gold.

13. Several interviews were conducted with VMI employees in January–February 2014.

14. Focus group discussion with former APEX employees, Maco, February 2014.

although former workers recalled a company guard by the name of Chavez — known for ‘his big hands he used to slap you with’¹⁵ — who played a key role in overseeing the operations, and who took an additional cut of the workers’ share. This manual mining episode lasted for roughly three or four years, after which APEX allegedly — the MGB claims to have no written records on this period — started sub-contracting its claim and infrastructure to outside investors.

In nearby New Bataan, a similar combination of labour activism, company mismanagement, and decreasing copper prices led to the bankruptcy and subsequent nationalization of SABENA mines in the early 1980s (Santos, 2001). At around the same time, part of SABENA’s mining concession witnessed the emergence of gold mining activities that were described by one respondent as ‘not large-scale, but also not really small-scale, they used blasting and a backhoe . . . there was manual labour inside the tunnel’.¹⁶ According to several respondents, company guards were involved in organizing these tunnelling activities, and some even claimed that ‘the management had a helicopter just to take away the gold’.¹⁷ While the labour force worked under a revenue-sharing arrangement, remunerations were irregular, and as a result many of the workers started ‘going solo’. The end of this ‘illegal gold mining project’ coincided roughly with the end of martial law in the mid-1980s, and only several years later did VMI start tunnelling the area anew (as mentioned above).

The initial expansion of ASM in the 1980s and early 1990s can thus be understood as the product of a profound crisis in large-scale mining, with many of those previously involved shifting their resources and energies to ASM. This included labourers looking for ways to compensate for their lost income, but also company cadres and skilled personnel who wanted to capitalize on shifting opportunities for accumulation. To fully understand the rationale underlying this transition from capital-intensive large-scale mining to labour-intensive ASM, we now turn to an (admittedly initial) empirical analysis of the social relations of production in ASM, which reveals that accumulation rests on the exploitation of informal labour.

Differentiation and Accumulation through Exploitation

Initially, ASM was a small-scale, self-financed affair, with miners and surface landowners each retaining equal shares of the ores. However, the increased involvement of outside financiers and skilled experts enabled the capitalization and professionalization of ASM (Verbrugge, 2014). This in turn led to increased differentiation, both between artisanal and more

15. Focus group discussion with former APEX employees, Maco, February 2014.

16. Interview with former SABENA miner, New Bataan, February 2014.

17. Interview with former SABENA miner, New Bataan, February 2014.

capitalized, 'medium-scale' — as respondents themselves referred to them — tunnelling operations, and between a dominant stratum of ASM entrepreneurs and a massive workforce that was now subjected to rising rates of exploitation. 'Exploitation' is understood here in the classic Marxist sense as 'the existence of a "surplus value" remaining when the value of a worker's wage and the value of the means of production consumed by a worker are subtracted from the value of a worker's produce. The rate of exploitation is the ratio of this surplus value to the value of the wage' (Burawoy, 1976: 1056).

In the first instance, the financier advances the operational expenses for the mining operations. These include the price for mining tools, sacks, a generator, a water pump and timber reinforcements. Some financiers also provide the workforce with food and shelter, and in some cases even with cash advances. Depending on the size of the operations, they also hire unskilled hauling, packing and processing labour and/or (semi-)skilled workers such as carpenters, electricians and sometimes even chemists and engineers. While the former are usually hired on a casual basis and receive low piece-rate wages (e.g. per bag, per sack), the latter earn fairly decent wages and have longer-term job security. In addition to these operational expenses, and depending on the area in question, there is also a range of rent-seekers that ask the financier for a share of the revenues. The (often informal) surface land claimants usually receive a 10–15 per cent royalty share. Local politicians ask for a range of fees or 'privileges'. In many cases, there is a tribal association claiming land and royalty rights under the Indigenous Peoples Rights Act (IPRA). Inside a *Minahang Bayan*, the rights-wielding cooperative will also ask for a royalty. Finally, Compostela Valley is home to a range of armed rent-seekers including the police (who also supply explosives), the army, and communist and Muslim rebels. These operational expenses and rent-seeking efforts are deducted from the gross revenues, and put serious downward pressures on the net revenues that are redistributed between the financier and the workforce.

The financier's cut of these net revenues ranges from one share (with the number of shares depending on the number of workers) to 70 per cent. However, 40:60 and 60:40 (per cent) are common schemes for revenue distribution between the financier and the workforce. This workforce is invariably organized into *corpos*, groups of miners operating a particular tunnel, and headed by a team leader. Whereas *corpo* members supposedly retain one share each, it is not uncommon for the team leader or selected *corpo* members to receive a bonus from the financier. The situation becomes more complicated in bigger tunnel complexes, where a tunnel portal branches out into numerous *destinos*. While the main tunnel and some *destinos* are maintained and financed by the management, other *destinos* have independent financiers. In the latter case, there is a multi-tiered system of benefit-sharing, whereby the management will retain 40 to 60 per cent of the *destino's*

revenues, while the rest is shared between the financier and the corpo of the destino in question.

Similar sharing schemes have been described elsewhere in positive terms (Godoy, 1988), and they are indeed characterized by a significant degree of mutuality: while financiers shift part of the risk to the workforce, the latter retains a chance to strike it rich and is in many cases guaranteed subsistence by the financier in the form of basic food provisions, shelter and sometimes even cash advances. However, these provisions (like various other inputs) often come from the financiers' own hardware store, warehouse, or gasoline station, and it is well known that financiers mark up the price of these inputs. More importantly, many financiers now own their own processing facilities, either in the form of a ball mill or a more sophisticated CIP plant, where recovery rates (according to local respondents) are two or three times higher than those of a ball mill. In cases where workers are paid in kind, they will process their ore share in a local ball mill, leaving the tailings for the owner who will then process these tailings in a plant for a custom milling fee (usually around P 80,000 or US\$ 2,000 for 20 tons). Increasingly, however, financiers are processing the ores directly in their own CIP plant (or that of one of their associates), paying the workers a cash share and deducting the costs for ore transport and processing as part of the operational expenses. At least intuitively, the higher recovery rate of CIP processing should lead to a higher share for the workers. However, the sheer complexity of CIP processing makes it difficult for workers to monitor production levels, and easier for financiers to cheat on the workforce. CIP processing also enables the extraction of silver, the revenues of which are rarely (if ever) included in the revenue sharing. Ultimately, ASM in Compostela Valley is now characterized by high degrees of capital concentration, with financiers and processing plant owners — following the initial example of VMI — coalescing into cartel-like structures. Wherever a promising tunnel prospect arises, these 'corporations' will come in and buy out (by including them in the management), compete with, or even drive out existing operators.

Based on these initial observations, it is clear that the distribution of benefits in the sector favours a dominant stratum of ASM entrepreneurs, a range of (armed) rent-seekers, and to a lesser extent those commanding vital skills and experience. Meanwhile the lion's share of the workforce, while depending on ASM for subsistence, is falling prey to high rates of exploitation. It should therefore not come as a surprise that several respondents expressed a clear preference for smaller, self-financed operations, because in their experience financiers will simply exploit the workforce. These observations about exploitation become more vivid when considering the dismal working and living conditions in ASM. Miners work long hours inside narrow and extremely hot tunnels, faced with the constant risk of tunnel collapse, exacerbated by the ubiquitous use of explosives. There is also a high risk of pulmonary diseases and even suffocation, due to inadequate or non-existent ventilation. In order to cope with this extreme working environment,

increasing numbers of the workers are turning to the use of methamphetamines (*shabu*), which makes the situation even more dangerous. Meanwhile processing labourers — and indeed the mining population at large (Appleton et al., 1999) — face the consequences of constant exposure to mercury and other hazardous chemicals. Living conditions outside the tunnels are hard, particularly for the massive migrant workforce that relies on the financiers for subsistence. Foodstuffs are basic, often not more than rice with canned sardines or dried fish, while accommodation in the ‘bunkhouse’ is often no more than a plastic sheet for cover, and rudimentary beds made of rope. A final factor to consider is the high variability and unpredictability of income due to the geological uncertainty of gold mining. While this uncertainty is partly offset by the provision of subsistence needs and cash advances by the financiers, which are widely seen as a token of goodwill, most respondents agreed that these provisions also function as a form of debt bondage, instilling a sense of loyalty and even obligation in the workforce (Bremen, 1999).

The Enabling Role of the State and Social Networks

In this final section I aim to demonstrate the role of the state and social networks in condoning, or even facilitating, accumulation through exploitation of ASM. It is remarkable how PD 1899, promulgated by President Marcos in 1984, captured the logic driving the informalization of mining, which was in full swing at the time. Not only did it mention that a combination of ‘inflation, volatile commodity prices, multiple increases of oil and fuel prices, stringent environmental control measures and high cost of capital’ proved disastrous for large-scale mining, it also recognized explicitly that the ‘abundance of cheap labor in the Philippines, relative flexibility and simplicity of operations, minimum capital requirements . . . are among the arguments that lend support to the development of small-scale mining’. Ultimately, PD 1899 put in place a minimalistic permit system that paid little or no attention to the woes of the workforce. This minimalistic focus on mineral tenure (and to a lesser extent on environmental regulation), to the detriment of labour rights, was essentially upheld in subsequent regulatory efforts, if not in formulation then at least in implementation. As noted earlier, despite a clear stipulation in RA 7076 that ‘All persons undertaking small-scale mining activities’ should register as members of an ASM cooperative, in practice this is a privilege reserved for a small stratum of ASM operators. In the meantime, both the Marcos government and successive democratic governments profited handsomely from ASM in the form of beefed-up gold reserves, as the central bank retains the exclusive right to buy ASM gold (Clad, 1988). Seen from this perspective, the government can be included among the vested interests in the exploitation of informal labour.

The absence of formal labour regulation does not necessarily imply an absence of regulation or even social protection as such, because 'work and well-being' in the informal economy are often regulated by informal social institutions (Harriss-White, 2010; Meagher, 1995). However, while several respondents indeed suggested that ASM has 'developed its own system of social security',¹⁸ these home-grown mechanisms are very limited in scope. As one respondent succinctly but cynically summarized the financier's obligations: 'The government is not watching over your shoulder. You do not have to pay philhealth or SSS.¹⁹ If something happens to one of the miners, you just pay the family a few thousands to buy their silence'.²⁰ Furthermore, while local miners can rely on local social networks, migrant miners often lack such connections, and depend overwhelmingly on their financier-patron, whose main concern is a cheap and reliable workforce. In this context, financiers rely on a range of strategies that combine economic, political and (the threat of) coercive power (Da Corta, 2011).²¹

There is another strategy that deserves brief mention, namely the role of middlemen in recruiting and disciplining the workforce (Bremen, 1999). There are a number of these middlemen. Every *corpo* is headed by a team leader, usually an experienced miner who commands the respect of the other miners. His main tasks relate to organizing the underground mining operations and monitoring the workforce, ensuring the unity of the *corpo* and preventing workers from leaving.²² The team leader also acts as a key gatekeeper for prospective labour recruits. Another key figure is the 'runner', who supplies the mining operations and acts as the 'eyes and ears' of the absentee financier in the area. In Compostela Valley, portal guards also play a vital role in monitoring the workforce: like Chavez in the case of the APEX operations mentioned above, they often have a reputation for violence, and do not shy away from using (physical) force to discipline the workers. A final, but essential, role is reserved for the landowner and his kin who, in exchange for a share of royalties and priority access to labour opportunities in high-grade tunnels, will monitor the area — and the workforce residing in it — on behalf of the financier. In many areas, the authority and the coercive capacity of local landowners is intimately intertwined with that of the *barangay*, the lowest political-administrative unit in the Philippines.

18. Interview with anonymous respondent, Quezon City, March 2014.

19. Philhealth and the Social Security System are a national health insurance programme and a semi-privatized social insurance programme, respectively, that require contributions from employers.

20. Interview with anonymous respondent, Davao City, January 2014.

21. The previous section drew (cursory) attention to economic coercion, particularly the mechanism of debt, as an instrument to discipline the workforce.

22. Interview with team leader, Nabunturan, October 2012.

DISCUSSION AND CONCLUSIONS

This article began by developing a critique of existing explanations for the persistence of informality in ASM, which share a 'legalistic' focus on regulatory barriers and political impediments that prevent or discourage the formalization of poverty-driven ASM operators through existing formalization schemes. However, such explanations fail to fully account for the situation in countries like the Philippines, where ASM is now characterized by differentiation between a dominant stratum of ASM entrepreneurs and a poverty-driven workforce. Even in cases where limited formalization efforts provide ASM with a degree of formal recognition, registration is reserved for the dominant group of ASM entrepreneurs, while excluding the workforce at large.

In an attempt to offer a more comprehensive explanation for the different causes and consequences of informality for different segments of the ASM sector, this article attempted to bridge the divide between the ASM literature and theoretical debates about informal sector activity. This led to an integrative approach to analysing informality in ASM, which complements a legalistic focus on entry barriers and exclusion with a structuralist concern for the exploitation of informal labour. Applied to the Philippines, this framework reveals that the massive expansion of predominantly informal ASM can be understood as a process of informalization in the mining sector as a whole, epitomized by a gradual transition from capital-intensive large-scale mining to a regime of accumulation built around flexible ASM and the exploitation of informal mining labour. Ultimately, these observations force us to rethink the diverse origins and implications of informality in ASM. While the existing literature projects an image of poor ASM operators that remain excluded — whether deliberately or not (Hilson, 2013) — from the formal economy, this article has also drawn attention to the vested interests in the (partial) persistence of informality, in the form of a labour force that is bereft of formal legal recognition and vulnerable to exploitation.

This more critical understanding of informality, which pays central analytical attention to the position of the workforce in historical trajectories of differentiation in ASM, can also inform a future research agenda. It would, for example, be interesting to adopt a comparative perspective to explore the extent to which the informalization angle can help shed light on the expansion of ASM as a predominantly informal activity in countries such as the DRC, where Rubbers (2006) has described a remarkably similar process of 'informal privatization' in Gécamines, a mining company in Katanga province. More generally, this article represents a new geographical exploration of sorts, as most of the ASM literature focuses selectively on sub-Saharan Africa and (to a lesser extent) Latin America. There is an urgent need for more (comparative) research on ASM in (Southeast) Asia, which aims to understand how certain regional and national peculiarities have impacted on the character and composition of ASM.

The critical approach to informality in ASM proposed here may also help shed new light on the relationship between ASM and large-scale mining. All too often, this relationship is approached from a static, dualist perspective, which assumes a strict distinction or even antagonism between informal and rudimentary ASM activities and a modern, formal large-scale mining sector (Canavesio, 2014). While many countries are indeed characterized by the coexistence of large-scale mining and ASM, this article has set out to illustrate that simplistic dualist images risk misinterpreting the heterogeneous and segmented character of the ASM sector, and the complexity of its (historical) interaction with large-scale mining. Under the impetus of rising mineral prices, the Philippines has seen a renewed interest on the part of large-scale mining companies, who are now venturing into areas with a significant ASM presence. While in some areas this is giving rise to conflict, a growing number of actors are now in support of working towards a 'win-win solution'. In the light of the analysis provided in this article, it will be particularly interesting to find out how future relationships between ASM and large-scale mining will affect the ASM workforce. The situation in Tanzania provides some relevant, albeit discouraging, insights as the liberalization of the mining sector and the associated expansion of medium- and large-scale mining claims have had perverse effects on the position of the workforce. On the one hand, many ASM claimants started selling their claims to mining companies, rendering the position of those working inside these claims highly uncertain (Fisher, 2007). On the other hand, instead of simply displacing ASM and investing in more mechanized operations, many of these companies capitalize on the presence of ASM, using their rights to levy rents (Chachage, 1995).

Finally, the arguments put forward in this article can be read as an invitation for policy makers to think of more inclusive approaches to formalizing ASM, which aim to transcend the currently dominant and rather narrow focus on mineral tenure, by also considering strategies to recognize and protect the interests of the massive workforce. Such an inclusive approach to formalization benefits tremendously from critical analysis that pays attention not only to the shortcomings of existing formalization efforts, but also to the position of the workforce in constantly changing regimes of accumulation in the mining sector as a whole.

REFERENCES

- Abinales, P.N. (2000) *Making Mindanao: Cotabato and Davao in the Formation of the Philippine Nation-State*. Manila: Ateneo de Manila University Press.
- Appleton, J.D., T.M. Williams, N. Breward, A. Apostol, J. Miguel and C. Miranda (1999) 'Mercury Contamination Associated with Artisanal Gold Mining on the Island of Mindanao, the Philippines', *The Science of the Total Environment* 228(2-3): 95-109.
- Banchirigah, S.M. (2007) 'How have Reforms Fuelled the Expansion of Artisanal Mining? Evidence from Sub-Saharan Africa', *Resources Policy* 31(3): 165-71.

- Banchirigah, S.M. (2008) 'Challenges with Eradicating Illegal Mining in Ghana: A Perspective from the Grassroots', *Resources Policy* 33(1): 29–38.
- Banchirigah, S.M. and G. Hilson (2009) 'De-Agrarianization, Re-Agrarianization and Local Economic Development: Re-Orientating Livelihoods in African Artisanal Mining Communities', *Policy Sciences* 43(2): 157–80.
- Biles, J.J. (2009) 'Informal Work in Latin America: Competing Perspectives and Recent Debates', *Geography Compass* 3(1): 214–36.
- Breman, J. (1999) 'Industrial Labour in Post-Colonial India II: Employment in the Informal-Sector Economy', *International Review of Social History* 44(3): 451–83.
- Burawoy, M. (1976) 'The Functions and Reproduction of Migrant Labor: Comparative Material from South Africa and the United States', *American Journal of Sociology* 81(5): 1050–87.
- Buxton, A. (2013) 'Responding to the Challenge of Artisanal and Small-Scale Mining: How Can Knowledge Networks Help?'. IIED Sustainable Market Papers. London: IIED.
- Caballero, E. (1992) 'Gold from the Gods: Traditional Small-Scale Miners from Benguet Province, Philippines'. PhD dissertation, University of Hawaii, Honolulu.
- Canavesio, R. (2014) 'Formal Mining Investments and Artisanal Mining in Southern Madagascar: Effects of Spontaneous Reactions and Adjustment Policies on Poverty Alleviation', *Land Use Policy* 36: 145–54.
- Cartier, L. and M. Bürge (2011) 'Agriculture and Artisanal Gold Mining in Sierra Leone: Alternatives or Complements?', *Journal of International Development* 23(8): 1080–99.
- Chachage, C. (1995) 'The Meek Shall Inherit the Earth but not the Mining Rights: The Mining Industry and Accumulation in Tanzania', in P. Gibbon (ed.) *Liberalised Development in Tanzania*, pp. 37–108. Uppsala: Nordiska Afrikainstitutet.
- Chen, M. (2008) 'Informality and Social Protection: Theories and Realities', *IDS Bulletin* 39(2): 18–27.
- Clad, J. (1988) 'Exploring for Policies', *Far Eastern Economic Review* 142: 76–7.
- Clifford, M.J. (2011) 'Pork Knocking in the Land of Many Waters: Artisanal and Small-Scale Mining (ASM) in Guyana', *Resources Policy* 36(4): 354–62.
- Da Costa, L. (2011) 'The Political Economy of Agrarian Change: Dinosaur or Phoenix?', in B. Harriss-White and J. Heyer (eds) *The Comparative Political Economy of Development: Africa and South Asia*, pp. 18–46. London and New York: Routledge.
- Fernandez-Kelly, M.P. and A.M. Garcia (1989) 'Informalization at the Core: Hispanic Women, Homework, and the Advanced Capitalist State', in A. Portes, M. Castells and L.A. Benton (eds) *The Informal Economy: Studies in Advanced and Less Developed Countries*, pp. 247–64. Baltimore, MD: The Johns Hopkins University Press.
- Fisher, E. (2007) 'Occupying the Margins: Labour Integration and Social Exclusion in Artisanal Mining in Tanzania', *Development and Change* 38(4): 735–60.
- Francisco, R. (2012) 'Special Report: Philippines' Black Market is China's Golden Connection'. <http://www.reuters.com/article/2012/08/23/us-philippines-gold-idUSBRE87M02120120823> (accessed 8 April 2014).
- Galvez, J. (2012) '80% of Small Mining Operations "Illegal"'. <http://www.manilatimes.net/index.php/business/top-business-news/14680-80-of-small-mining-operations-illegal> (accessed 4 March 2013).
- Geenen, S. (2011) 'Relations and Regulations in Local Gold Trade Networks in South Kivu, Democratic Republic of Congo', *Journal of Eastern African Studies* 5(3): 427–46.
- Geenen, S. (2012) 'A Dangerous Bet: The Challenges of Formalizing Artisanal Mining in the Democratic Republic of Congo', *Resources Policy* 37(3): 1–9.
- Godoy, R.A. (1988) 'Small-Scale Mining and Agriculture among the Jukumani Indians, Northern Potosi, Bolivia', *Journal of Development Studies* 24(2): 177–96.
- Gomez, M. (2010) 'Transparency Issues in the Philippine Mining Industry: Towards Tax Justice'. Policy Research Paper. Quezon City: Action for Economic Reforms.
- Habana, O. (2008) 'Gold Mining in Benguet: 1900–1941', *Philippine Studies* 49(1): 3–41.
- Harriss-White, B. (2010) 'Work and Wellbeing in Informal Economies: The Regulative Roles of Institutions of Identity and the State', *World Development* 38(2): 170–83.

- Heemskerk, M. (2005) 'Collecting Data in Artisanal and Small-Scale Mining Communities: Measuring Progress towards More Sustainable Livelihoods', *Natural Resources Forum* 29(1): 82–7.
- Hilson, G. (2010) "Once a Miner, Always a Miner": Poverty and Livelihood Diversification in Akwatia, Ghana', *Journal of Rural Studies* 26(3): 296–307.
- Hilson, G. (2011) 'Artisanal Mining, Smallholder Farming and Livelihood Diversification in Rural Sub-Saharan Africa: An Introduction', *Journal of International Development* 23(8): 1031–41.
- Hilson, G. (2013) 'Creating Rural Informality: The Case of Artisanal Gold Mining in Sub-Saharan Africa', *SAIS Review of International Affairs* 33(1): 51–64.
- Hilson, G. and C. Garforth (2012) "'Agricultural Poverty" and the Expansion of Artisanal Mining in Sub-Saharan Africa: Experiences from Southwest Mali and Southeast Ghana', *Population Resource and Policy Review* 31(3): 435–64.
- Hilson, G. and C. Potter (2005) 'Structural Adjustment and Subsistence Industry: Artisanal Gold Mining in Ghana', *Development and Change* 36(1): 103–31.
- Hilson, G. and S. Van Bockstael (2011) 'Diamond Mining, Rice Farming and a "Maggi Cube": A Viable Survival Strategy in Rural Liberia?', *Journal of International Development* 23(8): 1042–53.
- Hutchcroft, P. (1991) 'Oligarchs and Cronies in the Philippine State: The Politics of Patrimonial Plunder', *World Politics* 43(3): 414–50.
- ILO (1972) *Employment, Incomes and Equality: A Strategy for Increasing Productive Employment in Kenya*. Geneva: International Labour Organization.
- Jonsson, J.B. and N. Fold (2009) 'Handling Uncertainty: Policy and Organizational Practices in Tanzania's Small-Scale Gold Mining Sector', *Natural Resources Forum* 33(3): 211–20.
- Kamlongera, P. (2011) 'Making the Poor "Poorer" or Alleviating Poverty? Artisanal Mining Livelihoods in Rural Malawi', *Journal of International Development* 23(8): 1128–39.
- Locke, C. and P. Lloyd-Sherlock (2011) 'Qualitative Life Course Methodologies: Critical Reflections from Development Studies', *Development and Change* 42(5): 1131–52.
- Lopez, F. (1992) *Isles of Gold: A History of Mining in the Philippines*. Oxford: Oxford University Press.
- Maconachie, R. and G. Hilson (2011) 'Safeguarding Livelihoods or Exacerbating Poverty? Artisanal Mining and Formalization in West Africa', *Natural Resources Forum* 35(4): 293–303.
- Maloney, W. (2004) 'Informality Revisited', *World Development* 32(4): 1159–78.
- Meagher, K. (1995) 'Crisis, Informalization and the Urban Informal Sector in Sub-Saharan Africa', *Development and Change* 26(2): 259–84.
- Ofreneo, R. (2009) 'Failure to Launch: Industrialization in Metal-Rich Philippines', *Journal of the Asia Pacific Economy* 14(2): 194–209.
- Pinches, M.D. (1996) 'The Philippines' New Rich: Capitalist Transformation amidst Economic Gloom', in R. Robison and D. Goodman (eds) *The New Rich in Asia*, pp. 103–33. London: Routledge.
- Portes, A. and R. Schauffler (1993) 'Competing Perspectives on the Latin American Informal Sector', *Population and Development Review* 19(1): 33–60.
- Portes, A., M. Castells and L.A. Benton (eds) (1989) *The Informal Economy: Studies in Advanced and Less Developed Societies*. Baltimore, MD, and London: The Johns Hopkins University Press.
- Rubbers, B. (2006) 'L'effondrement de la Générale des Carrières et des Mines. Chronique d'un processus de privatization informelle' [The Collapse of Gécamines. The Chronicle of an Informal Privatization Process], *Cahiers d'études Africaines* (1): 115–33.
- Rubbers, B. (2007) 'Retour sur le "secteur informel". L'économie du Katanga (Congo-Zaïre) face à la falsification de la loi' [The "Informal Sector": The Economy of Katanga (Congo-Zaire) and the Falsification of the Law], *Sociologie du Travail* 49(3): 316–29.
- Santos, T.M. (2001) 'Growth of Copper Production: Determinants and Empirical Evidence', *Social Science Diliman* 2(2): 1–49.

- Siegel, S. and M. Veiga (2009) 'Artisanal and Small-Scale Mining as an Extralegal Economy: De Soto and the Redefinition of "Formalization"', *Resources Policy* 34(1–2): 51–6.
- De Soto, H. (1989) *The Other Path: The Invisible Revolution in the Third World*. New York: Harper Perennial.
- De Soto, H. (2000) *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. New York: Basic Books.
- Tabak, F. and M.A. Crichlow (2000) *Informalization: Process and Structure*. Baltimore, MD: The Johns Hopkins University Press.
- Teschner, B. (2012) 'Small-Scale Mining in Ghana: The Government and the Galamsey', *Resources Policy* 37(3): 308–14.
- Tschakert, P. and K. Singha (2007) 'Contaminated Identities: Mercury and Marginalization in Ghana's Artisanal Mining Sector', *Geoforum* 38(6): 1304–21.
- Van Bockstael, S. (2014) 'The Persistence of Informality: Perspectives on the Future of Artisanal Mining in Liberia', *Futures* 62: 10–20.
- Verbrugge, B. (2014) 'Capital Interests: A Historical Analysis of the Transformation of Small-Scale Gold Mining in Compostela Valley Province, Southern Philippines', *Extractive Industries and Society* 1(1): 86–95.
- Weiss, L. (1987) 'Explaining the Underground Economy: State and Social Structure', *British Journal of Sociology* 38(2): 216–34.

Boris Verbrugge (e-mail: verbruggeboris@gmail.com) is a post-doctoral researcher at the Conflict Research Group, Ghent University, Belgium, and at the Department of Anthropology and Development Studies, Radboud University, Nijmegen, The Netherlands.